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MEETING ABSTRACT Open Access

Cannabinoids in the treatment of pain

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Background

Cannabinoids and the endo-cannabinoid system play an important role in the sensation of pain. As conventional analgesics are often associated with serious side-effects, cannabinoids and agonists of their receptors offer a useful alternative or coanalgesic in the treatment of pain. The aim of this work is to summarize the role of cannabinoids and their receptors in nociception and pain treatment.

Materials and methods

Two main types of receptors for cannabinoids and endo-cannabinoids are implicated in nociception: the metabotropic cannabinoid receptors (mainly CB1 and CB2) and the ionotropic transient receptor potential channels TRP, which include the vanilloid receptors TRPV1, TRPV2, TRPV4 as well as TRPM8 and TRPA1.

Results

Antinociception related to CB1 receptor activation may be due to inhibition of GABA release in the brain, suppression of glutamate release in the spinal cord or due to induction of dopamine, noradrenaline and opioid peptide release. CB2 receptors are most likely implicated in antinociception of tonic inflammatory pain. Cannabinoid activation of TRP channels can result in desensitization of the TRPA1 and TRPV1 channel activities, inhibition of nociceptors, and antihyperalgesia and antinociception in certain pain models. There is also evidence for cooperation between metabotropic cannabinoid receptors and ionotropic TRP channels in nociceptive neurons.

Conclusions

Cannabinoids seem to be effective against neuropathic pain, inflammatory pain, post-operative pain and cancer pain. Their use as analgesics or coanalgesics may offer a useful alterative option for pain management in clinical practice.

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